AMENDMENTS TO THE CLAIMS

Claims 1-18 (Canceled)

19. (new) A process for preparing formaldehyde by gas-phase oxidation of methanol vapor by means of a gas stream comprising molecular oxygen in the presence of a fixed-bed catalyst comprising iron and molybdenum, wherein the process is carried out in a reactor having heat-exchange plates which are arranged in the longitudinal direction of the reactor and have a spacing between them and through which a heat transfer medium flows, inlet and outlet facilities for the heat transfer medium to the heat-exchange plates and also gaps between heat-exchange plates in which the fixed-bed catalyst is present and into which the methanol vapor and the gas stream comprising molecular oxygen are passed.

20. (new) A process according to claim 19, wherein the heat-exchange plates are arranged parallel to one another in the reactor.

21. (new) A process according to claim 19, wherein the reactor is cylindrical and the heat-exchange plates are arranged radially to leave a central space and a peripheral channel free in the cylindrical reactor and the gas stream comprising methanol vapor.

22. (new) A process according to claim 21, wherein the radial extension (r) of the heat-exchange plates is from 0.1 to 0.95 of the reactor radius (R).

23. (new) A process according to claim 19, wherein the reactor is made up of two or more, in particular detachable reactor sections and each reactor section is preferably equipped with a separate heat exchange medium circuit.

24. (new) A process according to claim 19, wherein the reactor is equipped with one or more cuboidal heat-exchange plate modules which are each made up of two or more rectangular heat-exchange plates which are arranged parallel to one another so as to leave a gap between them.

25. (new) A process according to claim 19, wherein the reactor has four quarter-cylindrical cuboidal heat-exchange plate modules each having identical dimensions.

26. (new) A process according to claim 24, wherein the reactor has two or more cuboidal heat-exchange plate modules each having identical dimensions.

27. (new) A process according to claim 26, wherein the reactor has 4, 7, 10 or 14 heat-exchange plate modules.

28. (new) A process according to claim 19, wherein the heat-exchange plates are each made up of two rectangular metal sheets which are joined on their longitudinal sides and ends by rolled seam welding and the margin of the metal sheets projecting beyond the rolled seam is separated off at the outer edge of the rolled seam or in the rolled seam itself.

29. (new) A process according to claim 24, wherein the reactor is cylindrical and an inert gas is fed into the space between the heat-exchange plate modules and the cylindrical wall of the reactor.

30. (new) A process according to claim 19, wherein the fixed-bed catalyst in the gaps is arranged in zones having a differing catalytic activity.

31. (new) A process according to claim 30, wherein the fixed-bed catalyst has a catalytic activity which changes in the flow direction of the reaction gas mixture in the region of the catalytically active zone.

32. (new) A process according to claim 19, wherein a fixed-bed catalyst made up of particles having an equivalent particle diameter (d_p) in the range from 2 to 6 mm is used.

33. (new) A process according to claim 19, wherein the width (s) of the gap is in the range from 8 to 50 mm and the ratio of the width of the gap to the equivalent particle diameters (s/d_p) is from 2 to 10.

34. (new) A process according to claim 19, wherein the superficial velocity of the reaction gas mixture in the gaps is up to 4.5 m/s.

35. (new) A process according to claim 19, wherein the reaction gas mixture is taken from the reactor, introduced directly into an after-cooler.

36. (new) A process according to claim 19, wherein the reaction gas mixture and the heat transfer medium are conveyed in cocurrent through the reactor.